Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-7.   (CANCELED)

8.   (Withdrawn) A system comprising:

a scanning device;

a first plate module configured to couple to the scanning device at a known orientation, the first plate module also configured to receive a first physical model of a first dentition of a patient and to position the first physical model within a first coordinate system, the first plate module including a plurality of alignment spheres arranged on the first plate module; and

a second plate module configured to receive a second physical model of a second dentition of the patient and to position the second physical model within a second coordinate system, the second plate module including a plurality of alignment spheres, the second plate module configured to couple to the scanning device at a known orientation;

wherein the second plate module is configured to operably couple to the first plate module using an articulation device to form a combined apparatus within the first coordinate system, the second plate module being moveable with respect to the first plate module when forming the combined apparatus, and wherein the combined apparatus can be coupled to the scanning device.

9.   (Withdrawn) The system of claim 8, further comprising:

a base plate module configured to couple to the scanning device, the base plate module defining at least a first alignment channel.

10.   (Withdrawn) The system of claim 9, wherein the base plate module is configured to receive the first plate module and the first alignment channel is configured to receive at least a first of the alignment spheres of the first plate module.

11.   (Withdrawn) The system of claim 10, wherein the first alignment channel is configured to receive at least the first and a second of the alignment spheres of the first plate module.

12.   (Withdrawn) The system of claim 10, wherein the base plate module is configured to receive the first plate module when the first plate module and the second plate module are coupled together to form the combined apparatus.

13.   (Withdrawn) The system of claim 9, wherein the base plate module is configured to receive the second plate module and the first alignment channel is configured to receive at least a first of the alignment spheres of the second plate module.

14.   (Withdrawn) The system of claim 9, wherein the base plate module also defines a second alignment channel orthogonal to the first alignment channel.

15.   (Withdrawn) The system of claim 14, wherein the first plate module includes first and second alignment spheres arranged to cooperatively mate with the first alignment channel and the first plate module further includes a third alignment sphere arranged to cooperatively mate with the second alignment channel to position the first plate module at a known orientation.

16.   (Withdrawn) The system of claim 8, wherein the first dentition of the patient represents an upper set of teeth of the patient.

17.   (Withdrawn) The system of claim 8, wherein the second dentition of the patient represents a lower set of teeth of the patient.

18.   (Withdrawn) The system of claim 8, wherein the first physical model includes from at least one member of the group consisting of a plaster mold, a wax mold, and a plastic mold.

19.   (Withdrawn) The system of claim 8, wherein the alignment spheres of the first plate module are arranged within a common plane.

20.   (Withdrawn) A method comprising:

arranging a first physical model on a scanning device, the first physical model associated with a first alignment sphere, a second alignment sphere, and a third alignment sphere;

scanning a surface of the first physical model along a first scan line to find an edge of the first physical model at a first edge point;

scanning the surface of the first physical model along a second scan line to find the edge of the first physical model at a second edge point, the second scan line being spaced a distance from the first scan line;

determining a first vector crossing the first edge point and the second edge point, the first vector having a first direction;

locating the first alignment sphere at a first location , the first location being located along the first vector; and

scanning the first alignment sphere to obtain positional data.

21.   (Withdrawn) The method of claim 20, further comprising:

locating the second alignment sphere based on the first vector and the location of the first alignment sphere.

22.   (Withdrawn) The method of claim 20, further comprising:

locating the third alignment sphere based on at least the first vector and the location of the first alignment sphere.

23.   (Currently Amended) A system for generating an electronic model ~~for~~ of a dental ~~impression~~ study cast, the electronic model having a common coordinate system, the system comprising:

a base plate module configured to couple to a scanning device;

~~two~~ a first scanning ~~apparatus for positioning physical objects~~ module configured to couple to the base plate module, the first scanning module being configured to position a first study cast of a first dental arch within a scanning device ~~when generating an~~ to generate a first electronic model ~~corresponding to each~~ of the ~~physical objects~~ first dental arch, ~~each~~ the first scanning ~~apparatus~~ module including a first plurality of alignment spheres;

a second scanning module configured to position a second study cast of a second dental arch within the scanning device to generate a second electronic model of the second dental arch,

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the second scanning module including a second plurality of alignment spheres, the second scanning module being configured to couple selectively to the base plate module and to the first scanning module;

an articulator configured to couple to the first and second scanning modules, the articulator being configured to position the first scanning module relative to the second scanning module to orient an occlusal surface of the first study cast towards an occlusal surface of the second study cast; and

a data processing system for processing generating the electronic models corresponding to each of the physical objects dental arches, the data processing system configured to possess generate the electronic models as polygonal mesh representations of the physical objects dental arches, the electronic models being generated within a common coordinate system; and

wherein the two scanning apparatus include a scanning base plate module and physical model plate modules for coupling the physical objects to the scanning base plate module within a coordinate system of the scanning device.

24.   (Canceled)

25.   (Currently Amended) The system according to claim 23, wherein the scanning base plate module comprises an x-axis alignment channel and y-axis alignment channel; and the physical model plate modules comprise the plurality of alignment position spheres, the plurality of alignment spheres are coupled to the x-axis alignment channel and the y-axis alignment channel to position the second scanning physical model plate module at a known location relative to the scanning base plate module.

26.   (Canceled)

27.   (Canceled)

28.   (Currently Amended) A method for generating an electronic model for of teeth of a patient a dental impression having a common coordinate system, the method comprising:

mounting a first physical model models onto a first corresponding scanning apparatus, plate module, the first physical model representing teeth of a lower jaw of a patient, the first

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scanning plate module ~~apparatus~~ positioning the first physical model ~~models~~ within a coordinate system of a scanning device, ~~each of~~ the first scanning ~~apparatus~~ plate module including a plurality of alignment spheres and ~~each of~~ the first scanning ~~apparatus~~ plate module coupling the first physical model ~~models~~ to a scanning base plate module of the scanning device;

scanning the first physical model to obtain position data of the teeth of the lower jaw of the patient and position data of the alignment spheres;

generating ~~an~~ a first electronic model ~~for each physical model~~ representing the teeth of the lower jaw of the patient, the first electronic model ~~models correspond to~~ including a polygonal mesh ~~representations~~ representation of the scanned position data of the teeth of the lower jaw;

mounting a second physical model onto a second scanning plate module, the second physical model representing teeth of an upper jaw of the patient, the second scanning plate module positioning the second physical model within a coordinate system of a scanning device, the second scanning plate module including a plurality of alignment spheres and the second scanning plate module coupling the second physical model to a scanning base plate module of the scanning device;

scanning the second physical model to obtain position data of the teeth of the upper jaw of the patient and position data of the alignment spheres;

generating a second electronic model representing the teeth of the upper jaw of the patient, the second electronic model including a polygonal mesh representation of the scanned position data of the teeth of the upper jaw;

after generating the first and second electronic models, positioning each of the scanning plate modules to arrange ~~apparatus into a desired position in which~~ the physical models ~~are positioned~~ relative to each other based on an appropriate interaction between the teeth of the lower jaw and the teeth of the upper jaw ~~as the objects corresponding to the physical models interact with each other~~ to form ~~generate~~ a composite scanning apparatus;

scanning ~~a reference point on one or more scanning apparatus~~ one of the alignment spheres within the combined scanning apparatus ~~that are not coupled to the scanning device~~; and

transforming the scanned positional data of the first and second electronic models ~~corresponding to the objects having scanning apparatus not coupled to the scanning device~~ to generate a composite electronic model in a common coordinate system, the composite electronic model representing the teeth of the upper jaw and the teeth of the lower jaw of the patient.

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29.   (Currently Amended) The method according to claim 28 wherein the method further comprises generating a position transformation vector using positional data obtained by scanning the alignment sphere the scanned reference point data, the position transformation vector being used to transform the first and second electronic models into a common coordinate system.

30.   (NEW) The method according to claim 28, wherein positioning each of the scanning plate modules comprises positioning the scanning plate modules to arrange the physical models into a first bite position.

31.   (NEW) The method according to claim 30, wherein positioning each of the scanning plate modules comprises positioning the scanning plate modules into an occlusion centric relation position.